

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application.

LISTING OF CLAIMS

1. (currently amended) A sewage aeration turbocompressor for continuously delivering air to a sewage sludge treatment plant, comprising: a compressor having a housing, an impeller mounted on an impeller shaft within the housing, and an electric motor having an output shaft coupled to and rotating in synchronism with the impeller shaft, the housing defining an axial air inlet extending to the impeller, a diffuser passageway extending radially outwards from the impeller, and a volute extending from the diffuser to an air outlet, wherein the electric motor is a variable speed permanent magnet motor controlled by an inverter, the motor is designed to drive the compressor at speeds within a range limited by maximum and minimum design speeds, the compressor is a fixed geometry compressor with a vaneless diffuser designed to deliver a pressure rise between the inlet and outlet of not more than 1500 millibar when the motor is driven at the maximum design speed, and the compressor is designed to deliver maximum efficiency when the motor is driven at a speed less than the maximum design speed.
2. (currently amended) A sewage aeration turbocompressor according to claim 1, wherein the compressor is designed to deliver a pressure rise of between 850 millibar when the motor is driven at the minimum design speed and 1200 millibar when the motor is driven at the maximum design speed.
3. (currently amended) A sewage aeration turbocompressor according to ~~any preceding~~ claim 1, wherein the diffuser is an annular passageway of uniform width in the axial direction.
4. (currently amended) A sewage aeration turbocompressor according to claim 1, 2 or 3, wherein the inverter is controlled by an oxygen demand sensor arranged to monitor the oxygen content of sludge in the sludge treatment plant.

5. cancelled
6. (new) A turbocompressor for delivering a gas to a sewage treatment plant comprising:
a compressor having a housing;
an impeller mounted on an impeller shaft within the housing; and
an electric motor having a maximum design speed and an output shaft coupled to the impeller shaft; and
wherein the housing is adapted to define an axial gas inlet extending to the impeller and a diffuser passageway extending radially outwards from the impeller and a volute extending from the diffuser to a gas outlet.
7. (new) The turbocompressor of claim 6 wherein the electric motor is a variable speed permanent magnet motor.
8. (new) The turbocompressor of claim 7 further including an inverter.
9. (new) The turbocompressor of claim 8 wherein the compressor is a fixed geometry compressor and further includes a vaneless diffuser.
10. (new) The turbocompressor of claim 9 wherein the compressor has a capacity to deliver a pressure rise between the inlet and the outlet at less than 1500 millibar when the motor is operating at the maximum design speed.
11. (new) The turbocompressor of claim 10 wherein the compressor has a maximum efficiency when the motor operates at a speed less than the maximum design speed.
12. (new) The turbocompressor of claim 11 wherein the compressor delivers a pressure rise between the inlet and the outlet of 850 millibar when the motor is driven at a minimum design speed and 1200 millibar when the motor is driven at the maximum design speed.
13. (new) The turbocompressor of claim 12 wherein the diffuser is an annular passageway of uniform width extending in an axial direction.

14. (new) The turbocompressor of claim 13 further comprising an oxygen demand sensor for monitoring the oxygen content of sewage in the sewage treatment plant, and wherein the inverter is responsive to an output of the oxygen demand sensor.